

## ABSTRACT OF THE DISCLOSURE

The present invention provides methods to characterize the structure, stability, and intersubunit interfaces between the matrix, capsid, and nucleocapsid domains of the Gag polyprotein during HIV capsid assembly and maturation. A method of screening for compounds that promote or inhibit viral assembly and maturation is disclosed. A novel mass spectrometry based approach to measure hydrogen/deuterium exchange profiles is also disclosed.

Quantitative data resulted from these studies may lead to well defined capsid assembly assays that can be adapted for rapid antiviral drug screening.